WHAT IS CLAIMED IS:

1   1.   A method of generating a continuous parametric model of an electronic circuit

2   parameter having a base model, comprising the steps:

3   determining whether the base model exhibits at least one discontinuity over an allowable

4   range of parameters;

5   if the base model exhibits at least one discontinuity, applying at least one compensation

6   function to prevent the base model from exhibiting discontinuities over the allowable range of

7   parameters;

8   determining whether the first derivative of the base model exhibits at least one

9   discontinuity over the allowable range of parameters; and

10   if the first derivative of the base model exhibits at least one discontinuity, applying at

11   least one compensation constant to prevent a first derivative of the base model from exhibiting

12   discontinuities over the permissible parametric range.

1   2.   The method of claim 1 wherein the base model takes the form

2    $$A_{eff} = A_0 - \frac{1}{2}[(A_0 - A - \delta) + \sqrt{(A_0 - A - \delta)^2 + 4 \bullet \delta \bullet A_0}] \, .$$

1   3.   The method of claim 2, wherein the at least one compensation function is

2   substituted into the base model in place of the constant term δ in the base model.

1   4.   The method of claim 3, wherein the at least one compensation function takes the

2   form of $\theta(A_0) = \dfrac{A_0}{K}$.

1   5.   The method of claim 4, wherein the at least one compensation function further

2   comprises a second compensation function which is substituted for the term A_0.

1   6.   The method of claim 5, wherein the second compensation function takes the

2   form, $A_0^* = A_0 + \Delta \bullet \exp(-A_0^2)$, where Δ is a constant having a value significantly less than A_0.

1   7.   The method of claim 6, wherein the compensation constant Δ is applied to the

2   base model and the resulting enhanced continuous parametric model is represented as

3
$$A_{eff} = A_0 - \frac{1}{2} \left\{ (A_0 - A - \theta - \Delta) + \sqrt{(A_0 - A - \theta)^2 + 4\theta A_0 + 2\sqrt{A_0^2}\,\Delta + 2\sqrt{\theta^2} \bullet \Delta + \Delta^2} \right\}.$$

1   8.   The method of claim 7, wherein A_{eff}, A_0 and A represent voltage parameters of an

2   electronic component.

1   9.   The method of claim 7, wherein A_{eff}, A_0 and A represent current parameters of an

2   electronic component.

1   10.   The method of claim 7, wherein A_{eff}, A_0 and A represent power parameters of an

2   electronic component.

1   11.   A continuous parametric model of a physical circuit element comprising:

2   a base model, said base model defining a representation of the circuit element,

3   said base model exhibiting at least one of a discontinuity over an allowable range of model

4   parameters and a discontinuity in the first derivative of the allowable range of model parameters;

5   at least one compensation function to remove the discontinuities of the base

6   model over the allowable range of parametric values; and

7   at least one compensation constant to prevent a first derivative of the base model

8   from exhibiting discontinuities over the allowable range of parameters.

1   12. The continuous parametric model method of claim 11, wherein the base

2 model takes the form

3
$$A_{eff} = A_0 - \frac{1}{2}[(A_0 - A - \delta\} + \sqrt{(A_0 - A - \delta)^2 + 4 \bullet \delta \bullet A_0}].$$

1   13. The continuous parametric model method of claim 12, wherein the at least one

2 compensation function is substituted into the base model in place of the constant term δ in the

3 base model.

1   14. The continuous parametric model method of claim 13, wherein the at least one

2 compensation function takes the form of $\theta(A_0) = \dfrac{A_0}{K}$.

1   15. The continuous parametric model method of claim 14, wherein the at least one

2 compensation function further comprises a second compensation function which is substituted

3 for the term A_0.

1   16. The continuous parametric model method of claim15, wherein the second

2 compensation function takes the form $A_0^* = A_0 + \Delta \bullet \exp(-A_0^2)$, where Δ is a constant having a

3 value significantly less than A_0.

1   17. The continuous parametric model method of claim 16, wherein the compensation

2 constant Δ is applied to the base model and the resulting enhanced continuous parametric model

3 is represented as

4
$$A_{eff} = A_0 - \frac{1}{2}\left\{ (A_0 - A - \theta - \Delta) + \sqrt{(A_0 - A - \theta)^2 + 4\theta A_0 + 2\sqrt{A_0^2}\Delta + 2\sqrt{\theta^2} \bullet \Delta + \Delta^2} \right\}.$$

1　　　　18.　　The continuous parametric model method of claim 17, wherein A_{eff}, A_0 and A

2　　represent voltage parameters of an electronic component.

1　　　　19.　　The continuous parametric model method of claim 17, wherein A_{eff}, A_0 and A

2　　represent current parameters of an electronic component.

1　　　　20.　　The continuous parametric model method of claim 17, wherein A_{eff}, A_0 and A

2　　represent power parameters of an electronic component.